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THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte DAISABURO KUBOTA and SEIJIRO OKADA

MAILED

JUN 03 1996

Appeal No. 95-2062  
Application 07/941,928<sup>1</sup>

PAT & TM OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

HEARD: May 7, 1996

Before HARKCOM, Vice Chief Administrative Patent Judge, THOMAS  
and HAIRSTON, Administrative Patent Judges.

HAIRSTON, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1 through 7 and 12 through 14. In an Amendment After Final (Paper No. 9), claims 2 and 13 were canceled, and claims 1 and 12 were

<sup>1</sup> Application for patent filed September 8, 1992.

amended. Accordingly, claims 1, 3 through 7, 12 and 14 remain before us on appeal.

The disclosed invention relates to the structure of a magnetic head assembly which uses a metal frame in direct contact with the head assembly and which also uses resin tape guides to position the tape with respect to the head assembly.

Claims 1 and 12 are illustrative of the claimed invention, and they read as follows:

1. A magnetic head assembly comprising:

a metal frame;

a magnetic head for magnetic tape recording; and

a tape guide, for guiding a magnetic tape, mounted on said metal frame, said tape guide being formed of a resin which adheres to the metal frame;

at least a portion of the magnetic head being directly connected to said metal frame, so that no part of the resin forming the tape guide is disposed between said at least a portion of the magnetic head and the metal frame, thereby preventing said resin from affecting a positional relation between said metal frame and said magnetic head.

12. a magnetic head assembly for use with a magnetic tape having a first edge and a second edge and a recording surface portion between said first edge and said second edge, said magnetic head assembly comprising:

(a) a magnetic head for magnetic tape recording; and

(b) a tape guide, for guiding a magnetic tape, comprising

(i) a tape edge positioning portion, for contacting with said first edge of the magnetic tape so as to position the magnetic tape in a direction substantially

Appeal No. 95-2062  
Application 07/941,928

perpendicular to a tape feed direction and substantially parallel to the recording surface portion of the magnetic tape,

(ii) a recording surface guide portion for guiding the recording surface portion of the magnetic tape, and

(iii) a tape urging portion for urging a second edge of the magnetic tape toward the tape edge positioning portion so as to position the magnetic tape along the tape edge positioning portion, said tape urging portion having a radius of curvature decreasing substantially continuously in a direction extending from the first edge of the magnetic tape positioned by the tape edge positioning portion toward the second edge of the magnetic tape urged by the tape urging portion,

wherein an angle between the recording surface guide portion and an imaginary plane, tangent to the tape urging portion at a position where the second edge of the magnetic tape contacts the tape urging portion, increases continuously in said direction extending from the first edge of the magnetic tape positioned by the tape edge positioning portion toward the second edge of the magnetic tape urged by the tape urging portion.

The references relied on by the examiner are:

Schoenmakers	4,485,420	Nov. 27, 1984
Linke	4,688,326	Aug. 25, 1987
Bennett et al. (Bennett)	4,732,213	Mar. 22, 1988
Hamana et al. (Hamana)	4,894,737	Jan. 16, 1990
Kunze	4,962,438	Oct. 9, 1990
Kaya et al. (Kaya)	5,055,956	Oct. 8, 1991
Saito	5,202,808	Apr. 13, 1993 (filed Feb. 15, 1991)

Claims 12 and 14 stand rejected under 35 U.S.C. §

102(b) as being anticipated by Kunze.

Claim 1 stands rejected under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito.

Appeal No. 95-2062  
Application 07/941,928

Claim 1 stands rejected under 35 U.S.C. § 103 as being unpatentable over Saito.

Claim 3 stands rejected under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito and Kaya.

Claims 4 and 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito and Kaya and Linke.

Claim 5 stands rejected under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito and Kaya and Bennett.

Claim 7 stands rejected under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito and Schoenmakers.

Reference is made to the briefs and the answer for the respective positions of the appellants and the examiner.

#### OPINION

We have carefully considered the entire record before us, and we will reverse the 35 U.S.C. § 102(b) rejection of claims 12 and 14. We will sustain the 35 U.S.C. § 103 rejection of claims 1, 3, 4, 6 and 7. We will reverse the 35 U.S.C. § 103 rejection of claim 5. A new ground of rejection of claim 5 is entered under 37 CFR 1.196(b).

Turning first to the rejection of claims 12 and 14 under 35 U.S.C. § 102(b) as being anticipated by Kunze, the examiner's position is that the tape guide surface 21 is

cylindrically curved and thus anticipates the claimed tape urging portion having a decreasing radius of curvature and a downwardly increasing angle created by the guide surface and a tangent to the tape urging portion (Answer, page 15). The examiner has interpreted a statement in Kunze (column 3, lines 51 through 55) that the control edge 24 is cylindrically curved to mean that the curve of the surface is in the length direction, as is depicted in appellants' Figure 11. The guide surface 21 of Kunze, however, is described as being "curved cylindrically in the width direction indicated by the arrow 22," (column 3, lines 39 through 41) as shown in Figure 2 of the patent. Arrow 22 indicates the lengthwise axis of the hypothetical cylinder representing the curvature of the surface 21. Our interpretation of the reference is supported by the fact that the surface is described as cylindrically curved "in the width direction" of the surface (i.e., the shorter dimension of surface 21 illustrated in Figure 2). Kunze further explains (column 3, lines 52 through 55) that the control edge 24 (which corresponds to appellants' tape urging portion 19) is cylindrically curved in the same manner as the guide surface 21, thus it too is curved in the widthwise direction. The movement-limiting surface 26 also has a cylindrical curvature which is closest to the surface 23 at the center and furthest from the surface 23 at the sides; accordingly, it is curved in the widthwise direction (column 4,

lines 1 through 6, and see transition 27 of Figure 2). We therefore find that the control edge surface 24 of Kunze is curved in a widthwise manner, and thus does not anticipate the claimed tape urging portion having a radius of curvature decreasing in a direction extending from the top of the tape to the bottom of the tape (lengthwise direction).

The examiner also argues that the claimed increasing angle created by the intersection of the tangent to the tape urging portion and the recording surface guide portion is anticipated by the discussion of Kunze at column 3, lines 48 through 63 (Answer, page 4). Kunze, however, discloses (column 3, lines 55 through 58) that "[t]he tangential plane of the control edge and the tangential plane of the guide surface 21 form an obtuse angle" which is preferably close to 120 degrees. Furthermore, the edges of control edge surface 24 are illustrated in both Figures 2 and 3 as being straight lines, rather than curving in the lengthwise direction. We therefore find that the claimed increasing angle created by the intersection of the tangent to the tape urging portion and the recording surface guide portion is not anticipated by the patent to Kunze. The rejection of claims 12 and 14 under 35 U.S.C. § 102(b) is reversed.

With respect to the rejection of claim 1 under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito,

and specifically the claim limitation requiring that at least a portion of the magnetic head be directly connected to the metal frame, the rejection states that "Hamana et al (US 4,894,737) show a magnetic head assembly with a mounting plate (30), or frame" with at least a portion of the head connected to the frame (Answer, page 5). We interpret this to mean that shield case 15 and head mounting plate 30 constitute the claimed metal frame. We also interpret the examiner's use of the word "head" to mean the magnetic cores 12 fixed together with fixing material 13 (magnetic core holder). As illustrated by Figure 1, the frame comprised of plate 30 and shield case 15 is directly connected (through case 15) to the magnetic head comprised of magnetic cores 12 surrounded by "fixing material 13." Accordingly, we agree with the examiner that magnetic head 1 is directly connected to frame 30 (Answer, page 12).

The elements of the frame are described as "shield case" and mounting "plate" 30 and the use of such terminology infers that they are made of metal. Because the two elements are shown in Figure 1 to be joined using spot welds (see circles on the mounting plate), we find that the shield case 15 and the plate 30 are both made of metal. We thus find that Hamana discloses a magnetic head which is directly connected to a metal frame.

Appellants argue that the shield case 15 is not directly connected to the magnetic core and thus does not satisfy the limitation requiring the head to be directly connected to the frame (Brief, page 5, second paragraph). Appellants' argument to the contrary notwithstanding, claim 1 requires that the frame be connected to the head, and not to the magnetic core. In fact, as demonstrated by the specification (page 6) and claim 3, the frame is fixed to the magnetic head by fixing the magnetic core holder 13 (as opposed to the magnetic cores) to the frame 11. Since, Hamana has disclosed (column 1, lines 23 through 25) that the resin 13 surrounding the magnetic cores 12 is a fixing material, which is shown in Figure 1 as surrounding and fixing the cores in place, both the cores 12 and the resin 13 constitute a magnetic head in direct contact with the frame. We therefore find that the patent to Hamana does disclose at least a portion of the head being directly connected to the frame of the magnetic head assembly.

Appellants argue that Hamana fails to disclose the direct connection between the head and the frame so that no part of the resin forming the tape guide is disposed between the magnetic head and the metal frame (Brief, page 6, first paragraph). As shown in Figures 1 and 3 of Hamana, the tape guides 2 are formed on the outside of shield case 15, and are not located between frame 15 and magnetic head consisting of



reference elements 12 and 13. Therefore, should the tape guides 2 be made of resin, they would not be between the frame and the head. Furthermore, the resin 13 which constitutes the holder of magnetic cores should not be confused with the tape guides 2. Thus, we find that the patent to Hamana does not disclose any of the material of the tape guides disposed between the frame and the head.

Appellants argue that Hamana fails to disclose tape guides of resin mounted on a metal frame (Brief, page 6, first paragraph). As shown in Figures 1 and 3 of Hamana, the tape guides 2 are formed on the outside of shield case 15, and are, therefore, mounted on the frame consisting of reference elements 15 and 30. As indicated supra, because Hamana describes element 15 as being a "shield case" and element 30 a "plate", and because Figure 1 shows the plate connected to the shield case using spot welds, we conclude that the frame is made of metal. Thus, from Hamana we have tape guides mounted on a metal frame. As acknowledged by the examiner, Hamana does not show that the tape guides are made of resin. Saito teaches using tape guides made out of resin because resin has excellent adhesivity, chemical resistance, oil resistance etc. (column 3, lines 34 through 40). Thus, a skilled artisan would have been motivated to locate tape guides made of resin on the frame or shield case 15 of Hamana for the advantageous reasons provided by Saito. Therefore, we will

Appeal No. 95-2062  
Application 07/941,928

sustain the rejection of claim 1 under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito.

The examiner also rejects claim 1 under 35 U.S.C. § 103 as being unpatentable over Saito. Although Saito does not disclose that the frame is made of metal, the examiner contends that it would have been obvious to a skilled artisan to replace the resin frame of Saito with a metal frame to provide better electromagnetic shielding (Answer, page 11). Appellants have challenged the examiner's assertion that such a substitution would have provided better electromagnetic shielding (Reply Brief, page 3). We agree with the examiner that forming the frame from metal will provide better shielding than the resin case disclosed by Saito, and that evidence is not needed to prove such a well-known fact. The examiner is not required to cite a reference when the doctrine of administrative or official notice is relied upon, unless there is a reasonable challenge by the appellants, a situation not before us. See In re Boon, 439 F.2d 724, 728, 169 USPQ 231, 234 (CCPA 1971).

Appellants also argue that Saito fails to disclose tape guides made of resin (Brief, page 6). As discussed above, Saito teaches (column 3, lines 34 through 40) using tape guides 22 and 27 made out of resin which possess beneficial characteristics such as excellent adhesivity, chemical resistance, oil resistance

Appeal No. 95-2062  
Application 07/941,928

etc. Thus, we find that Saito does disclose tape guides made of resin.

Appellant also argues that Saito fails to disclose that at least a portion of the magnetic head is directly connected to the metal frame (Brief, page 6). Saito discloses that the magnetic head 21 may be secured to the supporting member 23 (frame) with screws or force fit (column 3, lines 41 through 50). In order for the magnetic head to be force fit or screwed to the member 23, at least a portion of the head must be in contact with member 23. Consequently, we find that Saito does disclose that at least a portion of the magnetic head is directly connected to the metal frame. We will sustain the rejection of claim 1 under 35 U.S.C. § 103 as being unpatentable over Saito.

Turning to the rejection of claim 3 under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito and Kaya, appellants argue that because the support arrangement of Kaya would replace the plate 30 of Hamana, and not the case 15, the magnetic core 12 would still be connected to the resin and not a metal frame (Brief, page 7). Because Hamana discloses resin 13 surrounding the magnetic cores 12, which is used to fix the magnetic cores, we find that the resin corresponds to the claimed core holder and is the part of the head fixed to the frame. The reference to Kaya is simply cumulative to the teachings of Hamana. The 35 U.S.C. § 103 rejection of claim 3 is sustained.

With respect to the rejection of claim 4 under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito, and Kaya and Linke, appellants argue that Linke is directed to a system for allowing independent movement of the head elements (magnetic cores), and that the introduction of Linke would destroy the purpose of the Kaya patent (Brief, page 8). Hamana discloses resin surrounding the magnetic cores 12, which is used to fix the magnetic cores. The resin corresponds to the claimed core holder and, as resin, is comprised of a non-magnetic material. The reference to Linke is simply cumulative to the teachings of Hamana. The 35 U.S.C. § 103 rejection of claim 4 is sustained.

Turning to the rejection of claim 6 under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito, and Kaya and Linke, appellants repeat the argument that Linke is directed to a system for allowing independent movement of the head elements (magnetic cores) and thus would destroy the purpose of the Kaya patent (Brief, page 8). As indicated supra, the resin in Hamana corresponds to the claimed core holder and, as resin, is comprised of a non-magnetic material. The reference to Linke is directed towards reducing the cost of the manufacture of magnetic heads through the design of magnetic core holders, where the holders and the cores are assembled and installed (column 2, lines 8 through 47). As asserted by the examiner, Linke was used

Appeal No. 95-2062  
Application 07/941,928

to show that a skilled artisan would have been motivated to substitute different non-magnetic materials for use as the core holder (Answer, page 13). Linke discloses that various non-magnetic materials may be selected (e.g., glass-ceramic or non-magnetic ferrite) where the selection is made with respect to the intended application, machinability, and compatibility with the material of the magnetic cores (column 3, line 64 through column 4, line 9). In view of the noted benefits, we find that a skilled artisan would have been motivated to use a non-magnetic material such as ceramic to create a holder. The 35 U.S.C. § 103 rejection of claim 6 is sustained.

With respect to the rejection of claim 5 under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito and Bennett, we agree with appellants that the patent to Bennett discloses a process for selectively plugging permeable zones in subterranean formations and that it has nothing to do with magnetic recording systems. Accordingly, the 35 U.S.C. § 103 rejection of claim 5 is reversed.

With respect to the rejection of claim 7 under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito and Schoenmakers, appellants argue that there is nothing in the references to suggest combining the spot welding of Schoenmakers with the teachings of Hamana such that a skilled artisan would weld the frame of Hamana to the magnetic head (Brief, page 10).

Appeal No. 95-2062  
Application 07/941,928

Hamana discloses a magnetic head comprised of magnetic cores 12 and resin 13 directly connected to a metal frame shield case 15 and 30, with tape guides 2 mounted on case 15. Hamana fails to disclose whether the magnetic head is welded to the metal frame. Saito discloses that the magnetic head 21 may be secured to the supporting member 23 (frame) with screws or force fit, in lieu of resin (column 3, lines 41 through 50). Schoenmakers discloses spot welding a magnetic head to supporting plate 40 (column 7, lines 31 through 35). It would have been obvious to one of ordinary skill in the art at the time of the invention to secure the magnetic head to the frame in Hamana as taught by Saito, and to spot weld the two pieces together as taught by Schoenmakers so as to securely position the head with respect to the frame. The 35 U.S.C. § 103 rejection of claim 7 is sustained.

Pursuant to the provisions of 37 CFR 1.196(b), we hereby enter the following new ground of rejection:

Claim 5 is rejected under 35 U.S.C. § 103 as being unpatentable over Hamana in view of Saito and Linke. Hamana discloses a magnetic head comprised of magnetic cores 12 and resin 13 directly connected to a metal frame comprised of shield case 15 and plate 30, with tape guides 2 mounted on case 15. Hamana fails to disclose whether the tape guides are made of resin. Saito discloses (column 3, lines 34 through 40) that tape guides 22 and 27 are made of resin, and that resin is preferably

Appeal No. 95-2062  
Application 07/941,928

used because it has excellent adhesivity, chemical resistance, oil resistance, strength, a small thermal expansion coefficient and low hygroscopicity. As indicated supra, for the advantageous reasons disclosed by Saito, it would have been obvious to one of ordinary skill in the art at the time of the invention to make the Hamana tape guides out of resin.

Hamana also does not disclose a stainless steel magnetic core holder. Linke is directed towards reducing the cost of the manufacture of magnetic heads through the design of magnetic core holders, where the holders and the cores are assembled and installed (column 2, lines 8 through 47). Linke further discloses that various non-magnetic materials may be selected such as glass-ceramic or non-magnetic ferrite, where the selection is made with respect to the intended application, machinability, and compatibility with the material of the magnetic cores (column 3, line 64 through column 4, line 9). Therefore, it would have been obvious to one skilled in the art to use core holders made of stainless steel or other non-magnetic ferrite in the apparatus of Hamana for the reasons provided by Linke.

#### DECISION

The decision of the examiner rejecting claims 12 and 14 under 35 U.S.C. § 102(b) is reversed. The decision of the

Appeal No. 95-2062  
Application 07/941,928

examiner rejecting claims 1 and 3 through 7 under 35 U.S.C. § 103 is affirmed as to claims 1, 3, 4, 6 and 7, and is reversed as to claim 5. A new ground of rejection of claim 5 is entered under 37 CFR 1.196(b).

Any request for reconsideration or modification of this decision by the Board of Patent Appeals and Interferences based upon the same record must be filed within one month from the date hereof (37 CFR 1.197).

With respect to the new rejection under 37 CFR 1.196(b), should appellants elect the alternate option under that rule to prosecute further before the Primary Examiner by way of amendment or showing of facts, or both, not previously of record, a shortened statutory period for making such response is hereby set to expire two months from the date of this decision. In the event appellants elect this alternate option, in order to preserve the right to seek review under 35 U.S.C. 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellants elect prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to



Appeal No. 95-2062  
Application 07/941,928

us for final action on the affirmed rejection, including any  
timely request for reconsideration thereof.

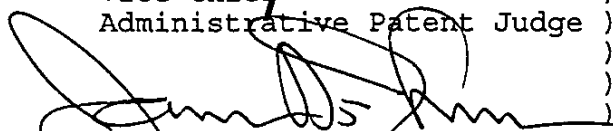
Effective August 20, 1989, 37 CFR 1.196(b) has been  
amended to provide that a new ground of rejection pursuant to the  
rule is not considered final for the purpose of judicial review  
under 35 U.S.C. § 141 or § 145.

No time period for taking any subsequent action in  
connection with this appeal may be extended under 37 CFR  
1.136(a). See the final rule notice, 54 F.R. 29548 (July 13,  
1989), 1105 O.G. 5 (August 1, 1989).

AFFIRMED-IN-PART, 37 CFR 1.196(B)



GARY V. HARKCOM )  
Vice Chief )  
Administrative Patent Judge )



JAMES D. THOMAS )  
Administrative Patent Judge )



KENNETH W. HAIRSTON )  
Administrative Patent Judge )

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Appeal No. 95-2062  
Application 07/941,928

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